



# SEQUENCE LISTING

<110> Houghton, Michael  
Choo, Ooi-Lim  
Kuo, George

<120> Hepatitis C virus protease

<130> 223002010004

<140> 09/884,455

<141> 2001-06-18

<150> 09/253,675

<151> 1999-02-18

<150> 08/709,177

<151> 1996-09-06

<150> 08/440,548

<151> 1995-05-12

<150> 08/350,884

<151> 1994-12-06

<150> 07/680,296

<151> 1991-04-04

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Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys

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Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met		
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Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly		
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Thr	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu		
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Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser		
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Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys



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65					70					75					80		
Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met		
				85					90					95			
Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly		
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Thr	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu		
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Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser		
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Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser		
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Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile		
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Gln	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys		
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Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu		
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Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu		
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Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly		
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Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly		
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Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His		
			180					185					190				

Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu
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Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val
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Leu	Glu	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro
			260					265					270		
Pro	Val	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr
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Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu
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Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu
65					70					75					80
Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly
				85				90						95	
Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly
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Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys
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Ile	Ile	Asn	Gly	Val	Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg
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Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val
145					150					155					160
Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly	Thr	Arg	Ser	Leu
				165					170					175	
Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His
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Ala	Asp	Val	Ile	Pro	Val	Arg									
		195													

<210> 68  
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Gln	Met	Glu 35	Thr	Lys	Leu	Ile	Thr 40	Trp	Gly	Ala	Asp	Thr 45	Ala	Ala	Cys
Gly 50	Asp	Ile	Ile	Asn	Gly	Leu 55	Pro	Val	Ser	Ala	Arg 60	Arg	Gly	Arg	Glu
Ile 65	Leu	Leu	Gly	Pro	Ala 70	Asp	Gly	Met	Val	Ser 75	Lys	Gly	Trp	Arg	Leu 80
Leu	Ala	Pro	Ile	Thr 85	Ala	Tyr	Ala	Gln	Gln 90	Thr	Arg	Gly	Leu 95	Leu	Gly
Cys	Ile	Ile	Thr 100	Ser	Leu	Thr	Gly	Arg 105	Asp	Lys	Asn	Gln	Val 110	Glu	Gly
Glu	Val	Gln 115	Ile	Val	Ser	Thr	Ala 120	Ala	Gln	Thr	Phe	Leu 125	Ala	Thr	Cys
Ile 130	Ile	Asn	Gly	Val	Cys	Trp 135	Thr	Val	Tyr	His	Gly 140	Ala	Gly	Thr	Arg
Thr 145	Ile	Ala	Ser	Pro	Lys 150	Gly	Pro	Val	Ile	Gln 155	Met	Tyr	Thr	Asn 160	Val
Asp	Gln	Asp	Leu	Val 165	Gly	Trp	Pro	Ala	Ser 170	Gln	Gly	Thr	Arg 175	Ser	Leu
Thr	Pro	Cys	Thr 180	Cys	Gly	Ser	Ser	Asp 185	Leu	Tyr	Leu	Val	Thr 190	Arg	His
Ala	Asp	Val 195	Ile	Pro	Val	Arg	Arg 200	Arg	Gly	Asp	Ser	Arg 205	Gly	Ser	Leu
Leu	Ser 210	Pro	Arg	Pro	Ile	Ser 215	Tyr	Leu	Lys	Gly	Ser 220	Ser	Gly	Gly	Pro
Leu 225	Leu	Cys	Pro	Ala	Gly 230	His	Ala	Val	Gly	Ile	Phe 235	Arg	Ala	Ala	Val 240
Cys	Thr	Arg	Gly	Val 245	Ala	Lys	Ala	Val	Asp 250	Phe	Ile	Pro	Val 255	Glu	Asn
Leu	Glu	Thr 260	Thr	Met	Arg	Ser	Pro 265	Val	Phe	Thr	Asp	Asn 270	Ser	Ser	Pro
Pro	Val 275	Val	Pro	Gln	Ser	Phe	Gln 280	Val	Ala	His	Leu	His 285	Ala	Pro	Thr
Gly 290	Ser	Gly	Lys	Ser	Thr	Lys 295	Val	Pro	Ala	Ala					

<213> Hepatitis C virus

attcggggca	cctatgttta	taaccatctc	actcctcttc	gggactgggc	gcacaacggc	60
ttgcgagatc	tggccgtggc	tgtagagcca	gtcgtcttct	cccaaattga	gaccaagctc	120
atcacgtggg	gggcagatac	cgccgcgtgc	ggtgacatca	tcaacggctt	gcctgtttcc	180
gcccgagggg	gccgggagat	actgctcggg	ccagccgatg	gaatgggtctc	caagggttgg	240
agggttgctgg	cgcccatcac	ggcgtacgcc	cagcagacaa	ggggcctcct	aggggtgcata	300

atcaccagcc	taactggccg	ggacaaaaac	caagtggagg	gtgaggtcca	gatttgtgtca	360
actgctgccc	aaaccttcct	ggcaacgtgc	atcatcaatg	gggtgtgctg	gactgtctac	420
cacggggccg	gaacgaggac	catcgcgta	cccaagggtc	ctgtcatcca	gatgtatacc	480
aatgtagacc	aagaccttgt	gggctggccc	gcttcgcaag	gtacccgctc	attgacaccc	540
tgcacttgcg	gctcctcggg	cctttacctg	gtcacgaggc	acgccgatgt	cattcccgtg	600
cgccggcggg	gtgatagcag	gggcagcctg	ctgtcgcccc	ggcccatttc	ctacttgaaa	660
ggctcctcgg	gggggtccgct	gttgtgcccc	gcgggggcacg	ccgtgggcat	atttagggcc	720
gcggtgtgca	cccgtggagt	ggctaaggcg	gtggacttta	tccctgtgga	gaacctagag	780
acaaccatga	gggtccccgg	gttcacggat	aactcctctc	caccagtagt	gccccagagc	840
ttccagggtg	ctcacctcca	tgtctcccaca	ggcagcggca	aaagcaccaa	gggtcccggct	900
gcatatgcag	ctcaggggcta	taagggtgcta	gtactcaacc	cctctgttgc	tgcaaacactg	960
ggctttggtg	cttacatgtc	caaggctcat	gggatcgatc	ctaacatcag	gaccgggggtg	1020
agaacaatta	ccactggcag	ccccatcacg	tactccacct	acggcaagtt	ccttgccgac	1080
ggcgggtgct	cggggggcgc	ttatgacata	ataatttgtg	acgagtgcc	ctccacggat	1140
gccacatcca	tcttggggcat	tggcactgtc	cttgaccaag	cagagactgc	gggggcgaga	1200
ctggttgtgc	tcgccaccgc	caccctccg	ggctccgtca	ctgtgcccc	tcccaacatc	1260
gaggaggttg	ctctgtccac	caccggagag	atcccttttt	acggcaaggc	tatccccctc	1320
gaagtaatca	aggggggggag	acatctcatc	ttctgtcatt	caaagaagaa	gtgcgacgaa	1380
ctcgccgcaa	agctggctgc	attgggcatc	aatgccgtgg	cctactaccg	cggctcttgac	1440
gtgtccgtca	tcccgaccag	cggcgatgtt	gtcgtcgtgg	caaccgatgc	cctcatgacc	1500
ggctataccg	gcgacttcga	ctcggtgata	gactgcaata	cgtgtgtcac	ccagacagtc	1560
gatttcagcc	ttgaccctac	cttcaccatt	gagacaatca	cgctccccca	agatgctgtc	1620
tcccgcactc	aacgtcgggg	caggactggc	agggggaagc	caggcatcta	cagatttgtg	1680
gcaccggggg	agcgccctcc	cggcatgttc	gactcgtccg	tcctctgtga	gtgctatgac	1740
gcaggctgtg	cttggtatga	gctcacgccc	gccgagacta	cagttaggct	acgagcgtac	1800
atgaacaccc	cggggcttcc	cgtgtgccag	gaccatcttg	aattttggga	gggcgtcttt	1860
acaggcctca	ctcatataga	tgcccacttt	ctatcccaga	caaagcagag	tggggagaac	1920
cttccttacc	tggtagcgta	ccaagccacc	gtgtgcgcta	gggtcaagc	ccctccccca	1980
tcgtgggacc	agatgtggaa	gtgtttgatt	cgctcaagc	ccaccctcca	tgggccaaca	2040
cccctgctat	acagactggg	cgct				2064

<210> 70

<211> 686

<212> PRT

<213> Hepatitis C virus

<400> 70

Gly	Thr	Tyr	Val	Tyr	Asn	His	Leu	Thr	Pro	Leu	Arg	Asp	Trp	Ala	His
1				5					10					15	
Asn	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Val	Phe	Ser
			20					25					30		
Gln	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys
		35					40					45			
Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu
	50					55					60				
Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu
65					70				75					80	
Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly
				85				90					95		
Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly
			100					105					110		
Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys



530		535		540
Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro				
545		550		555
Gly Glu Arg Pro Pro Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys				
	565		570	575
Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr				
	580		585	590
Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln				
	595		600	605
Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile				
	610		615	620
Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Leu Pro				
	625		630	635
Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro				
	645		650	655
Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro				
	660		665	670
Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala				
	675		680	685

<210> 71  
 <211> 368  
 <212> DNA  
 <213> Hepatitis C virus

<400> 71	
aattcggaaa accaagtgga gggtgaggtc cagattgtgt caactgctgc ccaaaccttc	60
ctggcaacgt gcatcaatgg ggtgtgctgg actgtctacc acggggccgg aacgaggacc	120
atcgcgtcac ccaaggggtcc tgtcatccag atgtatacca atgtagacca agaccttgtg	180
ggctggccccg cttcgcaagg taccgctca ttgacaccct gcacttgccg ctcctcggac	240
ctttacctgg tcacgaggca cgccgatgtc attcccgtgc gccggcgggg tgatagcagg	300
ggcagcctcg tgtcgccccg gcccatattcc tacttgaaag gctcctcggg ggggccgctg	360
ccgaattc	368

<210> 72  
 <211> 122  
 <212> PRT  
 <213> Hepatitis C virus

<400> 72	
Asn Ser Glu Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala	
1 5 10 15	
Ala Gln Thr Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val	
20 25 30	
Tyr His Gly Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val	
35 40 45	
Ile Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala	
50 55 60	
Ser Gln Gly Thr Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp	
65 70 75 80	
Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg	
85 90 95	

Gly Asp Ser Arg Gly Ser Leu Val Ser Pro Arg Pro Ile Ser Tyr Leu  
100 105 110  
Lys Gly Ser Ser Gly Gly Pro Leu Pro Asn  
115 120

<210> 73  
<211> 208  
<212> DNA  
<213> Hepatitis C virus

<400> 73  
gaattcgggg gcctgctgtt gtgccccgcg gcagccgtgg gcatatttag ggccgcggtg 60  
tgcacccgtg gagtggctaa ggcggtggac tttatccctg tggagaacct agagacaacc 120  
atgaggtccc cggtgttcac ggataactcc tctccaccag tagtgcccca gagcttccag 180  
gtggctcacc tccatgctcc ccgaattc 208

<210> 74  
<211> 69  
<212> PRT  
<213> Hepatitis C virus

<400> 74  
Glu Phe Gly Gly Leu Leu Leu Cys Pro Ala Ala Ala Val Gly Ile Phe  
1 5 10 15  
Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile  
20 25 30  
Pro Val Glu Asn Leu Glu Thr Thr Met Arg Ser Pro Val Phe Thr Asp  
35 40 45  
Asn Ser Ser Pro Pro Val Val Pro Gln Ser Phe Gln Val Ala His Leu  
50 55 60  
His Ala Pro Arg Ile  
65

<210> 75  
<211> 281  
<212> DNA  
<213> Hepatitis C virus

<400> 75  
ccctgcactt gcggctcctc ggacctttac ctgggtcacga ggcacgccga tgtcattccc 60  
gtgcgccggc ggggtgatag caggggcagc ctgctgtcgc cccggcccat ttcctacttg 120  
aaaggctcct cgggggggtcc gctgttgtgc cccgcggggc acgccgtggg catatttagg 180  
gccgcggtgt gcacccgtgg agtggctaag gcggtggact ttatccctgt ggagaacct 240  
gagacaacca tgaggtcccc ggtgttcacg gataactcct c 281

<210> 76  
<211> 93  
<212> PRT  
<213> Hepatitis C virus

<400> 76  
Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala



1		5		10		15									
Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu
		20					25					30			
Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu
		35					40					45			
Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys
	50					55					60				
Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu
65					70					75				80	
Glu	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser			
			85						90						

<210> 77  
 <211> 416  
 <212> DNA  
 <213> Hepatitis C virus

<400> 77	
attcgggggca cctatgttta taaccatctc actcctcttc gggactgggc gcacaacggc	60
ttgcgagatc tggccgtggc tgtagagcca gtcgtcttct cccaaatgga gaccaagctc	120
atcacgtggg gggcagatac cgccgcgtgc ggtgacatca tcaacggctt gcctgtttcc	180
gcccgcaggg gccgggagat actgctcggg ccagccgatg gaatggtctc caagggttgg	240
aggttgctgg cgcccatcac ggcgtacgcc cagcagacaa ggggcctcct aggggtgcata	300
atcaccagcc taactggccg ggacaaaaac caagtggagg gtgaggtcca gattgtgtca	360
actgctgccc aaaccttcct ggcaacgtgc atcaatgggg tgtgctggcc gaattc	416

<210> 78  
 <211> 138  
 <212> PRT  
 <213> Hepatitis C virus

<400> 78			
Ile Arg Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu Arg Asp Trp			
1	5	10	15
Ala His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Val			
	20	25	30
Phe Ser Gln Met Glu Thr Lys Leu Ile Thr Trp Gly Ala Asp Thr Ala			
	35	40	45
Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg Gly			
	50	55	60
Arg Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly Trp			
65	70	75	80
Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly Leu			
	85	90	95
Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val			
	100	105	110
Glu Gly Glu Val Gln Ile Val Ser Thr Ala Ala Gln Thr Phe Leu Ala			
	115	120	125
Thr Cys Ile Asn Gly Val Cys Trp Pro Asn			
	130	135	

<210> 79



<211> 308  
 <212> DNA  
 <213> Hepatitis C virus

<400> 79  
 gaattcgggt ccgatcatccc gaccagcggc gatggtgtcg tcgtcgcaac cgatgccctc 60  
 atgaccgggt ataccggcga cttcgactcg gtgatagact gcaatacgtg tgtcaccag 120  
 acagtcgatt tcagccttga ccctaccttc accattgaga caatcacgct cccccaagat 180  
 gctgtctccc gcactcaacg tcggggcagg actggcaggg ggaagccagg catctacaga 240  
 tttgtggcac cgggggagcg cccctccggc atgttcgact cgtccgtcct ctgtgagtgc 300  
 ccgaattc 308

<210> 80  
 <211> 102  
 <212> PRT  
 <213> Hepatitis C virus

<400> 80  
 Glu Phe Gly Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Val Ala  
 1 5 10 15  
 Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile  
 20 25 30  
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro  
 35 40 45  
 Thr Phe Thr Ile Glu Thr Ile Thr Leu Pro Gln Asp Ala Val Ser Arg  
 50 55 60  
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg  
 65 70 75 80  
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val  
 85 90 95  
 Leu Cys Glu Cys Pro Asn  
 100

<210> 81  
 <211> 495  
 <212> DNA  
 <213> Hepatitis C virus

<400> 81  
 attcgggtcca ttgagacaat cacgctcccc caggatgctg tctcccgcac tcaacgtcgg 60  
 ggcaggactg gcagggggaa gccaggcatc tacagatttg tggcaccggg ggagcgcccc 120  
 tccggcatgt tcgactcgtc cgtcctctgt gagtgctatg acgcaggctg tgcttggtat 180  
 gagctcacgc ccgccgagac tacagttagg ctacgagcgt acatgaacac cccggggcctt 240  
 cccgtgtgcc aggaccatct tgaattttgg gagggcgtct ttacaggcct cactcatata 300  
 gatgcccact ttctatccca gacaaagcag agtggggaga accttcctta cctggtagcg 360  
 taccaagcca ccgtgtgcgc tagggctcaa gcccctcccc catcgtggga ccagatgtgg 420  
 aagtgtttga ttcgcctcaa gccaccctc catgggcca caccctgct atacagactg 480  
 ggcgctgccg aattc 495

<210> 82  
 <211> 165  
 <212> PRT

<213> Hepatitis C virus

<400> 82

Ile	Arg	Ser	Ile	Glu	Thr	Ile	Thr	Leu	Pro	Gln	Asp	Ala	Val	Ser	Arg
1				5				10					15		
Thr	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg
			20				25						30		
Phe	Val	Ala	Pro	Gly	Glu	Arg	Pro	Ser	Gly	Met	Phe	Asp	Ser	Ser	Val
		35					40					45			
Leu	Cys	Glu	Cys	Tyr	Asp	Ala	Gly	Cys	Ala	Trp	Tyr	Glu	Leu	Thr	Pro
50						55					60				
Ala	Glu	Thr	Thr	Val	Arg	Leu	Arg	Ala	Tyr	Met	Asn	Thr	Pro	Gly	Leu
65					70				75						80
Pro	Val	Cys	Gln	Asp	His	Leu	Glu	Phe	Trp	Glu	Gly	Val	Phe	Thr	Gly
				85				90						95	
Leu	Thr	His	Ile	Asp	Ala	His	Phe	Leu	Ser	Gln	Thr	Lys	Gln	Ser	Gly
			100					105					110		
Glu	Asn	Leu	Pro	Tyr	Leu	Val	Ala	Tyr	Gln	Ala	Thr	Val	Cys	Ala	Arg
		115					120					125			
Ala	Gln	Ala	Pro	Pro	Pro	Ser	Trp	Asp	Gln	Met	Trp	Lys	Cys	Leu	Ile
		130				135					140				
Arg	Leu	Lys	Pro	Thr	Leu	His	Gly	Pro	Thr	Pro	Leu	Leu	Tyr	Arg	Leu
145					150					155					160
Gly	Ala	Ala	Glu	Phe											
				165											

<210> 83

<211> 816

<212> DNA

<213> Hepatitis C virus

<400> 83

gaattcgggg	cgggtggactt	tatccctgtg	gagaacctag	agacaaccat	gaggtccccg	60
gtgttcacgg	ataactcctc	tccaccagta	gtgccccaga	gcttccaggt	ggctcacctc	120
catgctccca	caggcagcgg	caaaagcacc	aaggtcccgg	ctgcatatgc	agctcagggc	180
tataaggtgc	tagtactcaa	cccctctgtt	gctgcaacac	tgggcttttg	tgcttacatg	240
tccaaggctc	atgggatcga	tcctaacatc	aggaccgggg	tgagaacaat	taccactggc	300
agccccatca	cgtactccac	ctacggcaag	ttccttgccg	acggcgggtg	ctcggggggc	360
gcttatgaca	taataatttg	tgacgagtgc	cactccacgg	atgccacatc	catcttgggc	420
attggcactg	tccttgacca	agcagagact	gcggggggcga	gactggttgt	gctcgccacc	480
gccaccctc	cgggctccgt	cactgtgccc	catcccaaca	tcgaggaggt	tgctctgtcc	540
accaccggag	agatcccttt	ttacggcaag	gctatcccc	tcgaagtaat	caaggggggg	600
agacatctca	tcttctgtca	ttcaaagaag	aagtgcgacg	aactcgccgc	aaagctggtc	660
gcattgggca	tcaatgccgt	ggcctactac	cgcggtcttg	acgtgtccgt	catcccgacc	720
agcggcgatg	ttgtcgtcgt	ggcaaccgat	gccctcatga	ccggctatac	cggcgacttc	780
gactcggtga	tagactgcaa	tacgtgtgcc	gaattc			816

<210> 84

<211> 272

<212> PRT

<213> Hepatitis C virus

<400> 84

Glu	Phe	Gly	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu	Glu	Thr	Thr	
1				5				10						15		
Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Val	Val	Pro	
			20					25					30			
Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	
		35					40					45				
Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	
	50					55					60					
Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	
65					70					75					80	
Ser	Lys	Ala	His	Gly	Ile	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr	
				85				90						95		
Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu	
			100					105					110			
Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp	
		115					120					125				
Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	
	130					135					140					
Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	
145					150					155					160	
Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	Glu	Glu	
				165					170					175		
Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile	
			180					185					190			
Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser	
		195					200					205				
Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	Gly	Ile	
	210					215					220					
Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	Pro	Thr	
225					230					235					240	
Ser	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr	Gly	Tyr	
			245						250					255		
Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Ala	Glu	Phe	
			260					265					270			

<210> 85

<211> 2523

<212> DNA

<213> Artificial Sequence

<220>

<223> vector cf1SODp600

<400> 85

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gaaggcctgc	atggattcca	tgttcatgag	tttgagata	atacagcagg	ctgtaccagt	180
ccaggtcctc	actttaatcc	tctatccaga	aaacacgggtg	ggccaaagga	tgaagagagg	240
catgttggag	acttgggcaa	tgtgactgct	gacaaagatg	gtgtggccga	tgtgtctatt	300
gaagattctg	tgatctcact	ctcaggagac	cattgcatca	ttggccgcac	actggtggtc	360
catgaaaaag	cagatgactt	gggcaaaggt	ggaaatgaag	aaagtacaaa	gacaggaaac	420

gctggaagtc	gtttggcttg	tggtgtaatt	gggatccgaa	ttcggggcac	ctatgtttat	480
aaccatctca	ctcctcttcg	ggactgggcg	cacaacggct	tgcgagatct	ggccgtggct	540
gtagagccag	tcgtcttctc	ccaaatggag	accaagctca	tcacgtgggg	ggcagatacc	600
gccgcgtgcg	gtgacatcat	caacggcttg	cctgtttccg	cccgcagggg	ccgggagata	660
ctgctcgggc	cagccgatgg	aatgggtgcc	aagggttgga	ggttgctggc	gccccatcacg	720
gcgtacgccc	agcagacaag	gggcctccta	gggtgcataa	tcaccagcct	aactggcccg	780
gacaaaaacc	aagtggaggg	tgaggtccag	attgtgtcaa	ctgctgcca	aaccttcctg	840
gcaacgtgca	tcatcaatgg	ggtgtgctgg	actgtctacc	acggggcccg	aacgaggacc	900
atcgcgtcac	ccaaggggcc	tgtcatccag	atgtatacca	atgtagacca	agaccttggtg	960
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 Trp Gly Ser Ile Lys Gly Leu Thr Glu Gly Leu His Gly Phe His Val  
 35 40 45

His	Glu	Phe	Gly	Asp	Asn	Thr	Ala	Gly	Cys	Thr	Ser	Pro	Gly	Pro	His
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Phe	Asn	Pro	Leu	Ser	Arg	Lys	His	Gly	Gly	Pro	Lys	Asp	Glu	Glu	Arg
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His	Val	Gly	Asp	Leu	Gly	Asn	Val	Thr	Ala	Asp	Lys	Asp	Gly	Val	Ala
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Asp	Val	Ser	Ile	Glu	Asp	Ser	Val	Ile	Ser	Leu	Ser	Gly	Asp	His	Cys
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				165					170					175	
Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Val	Phe	Ser	Gln	Met	Glu	Thr	Lys
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Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Asn
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Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro
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Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr
225					230					235					240
Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser
			245					250						255	
Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Ile	Val
			260					265					270		
Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys	Ile	Ile	Asn	Gly	Val
		275					280					285			
Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro
		290				295					300				
Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val
305					310					315					320
Gly	Trp	Pro	Ala	Ser	Gln	Gly	Thr	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys
			325					330						335	
Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro
			340					345					350		
Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro
			355				360						365		
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		370				375					380				
Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val
385					390					395					400
Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu	Glu	Thr	Thr	Met
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Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Val	Val	Pro	Gln
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Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser
		435					440					445			
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		450				455					460				

Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	Ser	465	470	475	480
Lys	Ala	His	Gly	Ile	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr	Ile	485	490	495	
Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu	Ala	500	505	510	
Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp	Glu	515	520	525	
Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu	530	535	540	
Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	Ala	545	550	555	560
Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	Glu	Glu	Val	565	570	575	
Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile	Pro	580	585	590	
Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser	Lys	595	600	605	
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Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Val	Thr	Gln	Thr	660	665	670	
Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr	Ile	Thr	Leu	675	680	685	
Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg	690	695	700	
Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu	Arg	Pro	Pro	705	710	715	720
Gly	Met	Phe	Asp	Ser	Ser	Val	Leu	Cys	Glu	Cys	Tyr	Asp	Ala	Gly	Cys	725	730	735	
Ala	Trp	Tyr	Glu	Leu	Thr	Pro	Ala	Glu	Thr	Thr	Val	Arg	Leu	Arg	Ala	740	745	750	
Tyr	Met	Asn	Thr	Pro	Gly	Leu	Pro	Val	Cys	Gln	Asp	His	Leu	Glu	Phe	755	760	765	
Trp	Glu	Gly	Val	Phe	Thr	Gly	Leu	Thr	His	Ile	Asp	Ala	His	Phe	Leu	770	775	780	
Ser	Gln	Thr	Lys	Gln	Ser	Gly	Glu	Asn	Leu	Pro	Tyr	Leu	Val	Ala	Tyr	785	790	795	800
Gln	Ala	Thr	Val	Cys	Ala	Arg	Ala	Gln	Ala	Pro	Pro	Pro	Ser	Trp	Asp	805	810	815	
Gln	Met	Trp	Lys	Cys	Leu	Ile	Arg	Leu	Lys	Pro	Thr	Leu	His	Gly	Pro	820	825	830	
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<223> primer

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